

NEW SPECIES OF *ANDRENA* FROM CALIFORNIA
(HYMENOPTERA)

BY P. H. TIMBERLAKE

Citrus Experiment Station, Riverside, California

The four black species of *Andrena* described herewith belong to the *pertristis-blaisdelli* group. The descriptions are submitted for publication at this time in order that Mr. E. Gorton Linsley may include an account of these species in his study of the black *Andrena* of California.

The types of the species described herewith are in the collection of the Citrus Experiment Station, Riverside, California, with the exception of those paratypes whose disposition is mentioned later under the respective species.

Andrena oenotheræ Timberlake, n. sp.

Closely allied and similar to *A. blaisdelli* Ckll., but somewhat larger, with finer punctures on the abdomen. In *blaisdelli* the punctures leave a broad, smooth margin at the apex of tergites 1 to 4; in *oenotheræ* this smooth margin is comparatively narrow.

Female. Black, with entirely black hair. Head broader than long, the clypeus more produced than in *blaisdelli*. Facial foveæ very broad above, ending below in a broadly rounded point slightly below level of antennal sockets. Clypeus convex, shining, finely and closely punctured, without indication of a median smooth line. Remainder of face below antennæ shining, more finely punctured than clypeus. Frons longitudinally striate. Process of labrum with a triangular base and an apical prolongation that is longer than wide and is constricted where it joins the basal triangle. (In *blaisdelli* the apical part of the process is as wide as, or wider than, long, and shows no sharp differentiation from the basal part.) Malar space very short, but not so linear as in *blaisdelli*. Third antennal joint slightly longer than the next two joints combined. Flagellum very dark brown beneath, more reddish toward apex. Mesoscutum and scutellum very dull, finely and closely punctured, the punctures becoming slightly sparser and more distinct on the posterior middle of scutum. Mesopleura densely granular punctate. Enclosure of propodeum rather well defined and with a coarser wrinkling than in *blaisdelli*. Rest of dorsal surface of propodeum with a similar but finer sculpture than mesopleura. Sides of propodeum below the floccus more shining, finely punctured and hairy. Wings subhyaline, and prac-

tically as in *blaisdelli*, but larger. Abdomen shining, finely and closely punctured. The punctures of abdomen, especially of first tergite, obviously finer and sparser than in *blaisdelli*, and leave a very narrow smooth apical margin on the first four segments. On the first tergite the punctures are mostly about four or five puncture widths apart. Pygidium broadly rounded at apex, its surface planate. Pubescence abundant, but not dense enough anywhere to conceal the surface. On mesonotum the hair is mostly rather short and erect, with a few longer hairs intermixed. On the mesopleura it is considerably longer. Floccus of propodeum moderately short, rather dense and straight. Flocculus of hind trochanters long and curled. Scopa of hind tibiæ long and spreading, practically as in *blaisdelli*, the hair on the dorsal margin being long, erect and not at all plumose. Hair of tergite II to IV short and erect, moderately dense. Length, about 12.5 mm.; fore wing, 9.2 mm.

In the series listed below there is only slight variation in the characters described above, but the length varies from about 11 to 13 mm., and that of the fore wing from 8.5 to 9.5 mm.

Described from 16 females (holotype and paratypes) from the Gavilan, Riverside County, California, February 20 to March 20 (C. M. Dammers) and mostly, if not all, collected on flowers of *Oenothera* (the holotype collected March 20, 1932); and the following paratypes: 3 females, Riverside, on *Eriogonum fasciculatum* and *Cryptantha intermedia*, February 16 to March 25 (Timberlake); 1 female, on *Salix*, Soboba Hot Springs, February 22 (Timberlake); 3 females, Claremont (Baker); 1 female, Alamitos Bay, on *Oenothera spiralis*, May 6 (Timberlake); 1 female, 3 miles northwest of Newton, San Diego County, on *Cryptantha*, April 14 (Timberlake); 1 female, Azusa, (E. Holbirt); 1 female, 10 miles west of San Bernardino, May 26 (Linsley); 2 females, Mohave Desert, March 12 (Linsley); 1 female, 11 miles southwest of Victorville, Mohave Desert, on *Ericameria cooperi*, May 5 (Linsley); 1 female, San Francisco, April 20 (Linsley); 1 female, Oakland Hills, March 12 (Linsley); 1 female, Palmdale, April 11 (G. E. and R. M. Bohart); 1 female, Cave Creek, Chiricahua Mts., Ariz., July 4 (Linsley).

The paratypes collected by Mr. Linsley and by Messrs. G. E. and R. M. Bohart have been returned to their respective owners.

The male of *A. œnothæræ* is rather uncertain, hence the following material is not included in the type series, but a series of 18 males collected at Azusa by E. Holbirt probably belongs

with *ænotheræ*. They are very similar to what I have considered for a long time to be the male of *A. blaisdelli* Ckll. The latter has hair of head, pleura, propodeum, legs and abdomen black, that of the notum of thorax dull white. Hair of occiput, of first tergite, and often more or less at anterior end of cheeks also white. The *Azusa* males have the hair of head and thorax mainly dull white, with black hair on each side of face, on cheeks behind summit of eyes, and some on the antennal scapes and a little on pleura just below base of wings. Several of this series from *Azusa*, however, have hair of cheeks and pleura mainly black, and more than the usual amount on the scapes and sides of face, but still differ from *blaisdelli* males in having white hair on middle of face (especially clypeus) and on dorsum of propodeum. Hair of legs and abdomen black, but the long hair fringing the femora behind (very little on hind femora, however) and hair on first tergite white. In sculpture and structural characters, including genitalia, the two species are practically identical, except that in the putative *ænotheræ* male, the fourth antennal joint is somewhat longer than in *blaisdelli* and not greatly shorter than either the third or fifth joint. In *blaisdelli* the fourth joint on its short side is hardly longer than thick.

Andrena linsleyi Timberlake, n. sp.

This is another derivative of the *blaisdelli* group, and differs from *blaisdelli* and *ænotheræ* in having the clypeus much more sparsely punctured, the process of labrum differently shaped, and the mesoscutum distinctly less dull and more distinctly punctured. The scopa of hind tibiæ is also much thinner than in either of those species.

Female. Black, with entirely black hair. Head and foveæ as in *ænotheræ*. Clypeus more produced than in *blaisdelli*, and the malar space less linear. Clypeus convex, polished, sparsely punctured, with little or no indication of a medium smooth line, the punctures becoming closer on the lateral margins. Sides of face below antennæ very finely and densely punctured. Frons longitudinally striate on each side and rugulose in middle. Process of labrum triangular, rather broader at base than high, and with apex of the triangle narrowly truncated. Third antennal joint about equal to the next two combined. Flagellum dark reddish brown beneath. Mesoscutum dullish, finely and closely punctured, the punctures on posterior middle of disk about one to two punc-

ture widths apart with the interspaces very minutely tessellate. Scutellum similarly punctured and rather shiny at base. Mesopleura somewhat duller than the scutum and more obscurely punctured. Basal enclosure of propodeum well defined and finely rugose as in *blaisdelli*. The remainder of dorsal surface of propodeum very finely granular-rugulose and obscurely punctured. Sides of propodeum below the floccus slightly dullish, hairy but without distinct punctures. Wings hyaline, clearer than in *blaisdelli*, the venation and stigma nearly black. Abdomen shining, punctured almost as closely as in *blaisdelli*, but a little more finely on the first tergite. Punctureless apical margin of tergites II to IV rather wide as in *blaisdelli*, but very narrow on I. Pubescence in general as in *blaisdelli* and *œnotheræ*, but hair of clypeus thinner and the scopa of hind tibiæ remarkably long and loose. Length, about 12 mm.; fore wing, 8.5 mm.

Holotype female, from two miles north of Palm Springs, Calif., on *Hyptis emoryi* (not collecting pollen) March 7, 1936 (Timberlake). One female (paratype) Colorado Desert, near Needles, March 6, 1930 (E. G. Linsley), in the Linsley collection.

The paratype differs slightly in having the legs especially femora, the venter, the hair on under side of tarsi and the veins and stigma more reddish.

Andrena flandersi Timberlake, n. sp.

This insect is probably more similar to *A. irana* Ckll. than to any other previously described. It differs from that species in having the clypeus closely punctured, mesoscutum more coarsely and almost densely punctured, the punctureless apical margin of tergites extremely broad, etc. From *blaisdelli* and other similar species it differs in having the mesoscutum shiny instead of dull and in the wider smooth apical area on the tergites.

Female. Black, with entirely black pubescence. Head wider than long. Clypeus but little produced, moderately convex, shining, closely and deeply punctured. Side of face below antennæ and supraclypeal area finely and densely punctured. (In *irana* the whole face below the antennæ appears to be much more shiny because the punctures are considerably sparser). Frons longitudinally striate. Foveæ very broad, narrowed to a rounded point just below level of antennæ. Process of labrum with a low broadly rounded basal part and a median prolongation at apex. The latter portion is more or less bulbous, a little restricted where it joins the basal part, about as wide at apex as long, and depresso-emargi-

nate in the middle of the apical margin. Malar space linear. Third antennal joint as long as IV plus V. Flagellum only very slightly brownish beneath, toward apex. Mesoscutum and scutellum shining, strongly and very closely punctured, the punctures mostly not more than one puncture width apart. Mesopleura densely ruguloso-punctate. Dorsal surface of propodeum with similar but finer sculpture than mesopleura. The enclosure hardly defined except by the difference in sculpture, which consists of a fine wrinkling about as in *blaisdelli*. (In *irana* the enclosure is very minutely rugulose and dull like remainder of dorsal surface). Wings subhyaline, with blackish veins and stigma, the venation practically as in *blaisdelli*. Abdomen shining, polished, very finely punctured. Punctures of first tergite very sparse, so that the segment, unless carefully examined, almost appears to be impunctate. Next four tergites closely punctured about as *blaisdelli*, the punctured area reaching almost to the apical margin at the sides of the segments, but in the middle not extending on to the apical depression. Tergites II to IV each depressed in middle about two-fifths. Pygidium planate, broadly rounded at apex. Pubescence in general shorter than in *blaisdelli* or *irana*. On mesoscutum it is very short, erect and plumose, but much too sparse to conceal the surface. Tergite I with a few long hairs on lateral margins, but the disk almost nude. Tergites II to IV with short, erect hairs as in *blaisdelli* and *irana*. Scopa of middle tibiae long and rather loose as in *blaisdelli*. (In *irana* the scopa is more compact and depressed.) Length, 11.5 mm.; fore wing, 8 mm.

Described from three females (holotype and paratypes) collected about 11 miles southwest of Victorville (on highway), Mohave Desert, Calif., at flowers of *Ericameria cooperi*, May 5, 1936 (Linsley and Timberlake). Also one female (paratype) without locality label that was given to me some years ago by Mr. Stanley Flanders, and which was probably collected in southern California. The specimens from *Ericameria* were not collecting pollen. The smallest paratype is 10 mm. long, with fore wing measuring 7.8 mm. One paratype collected by Mr. Linsley has been returned to his collection.

Andrena deserticola Timberlake, n. sp.

This species resembles *A. irana* Ckll. and *A. flandersi* Timb., differing from the former in the closely punctured clypeus, finely wrinkled enclosure of propodeum, much longer hairs on mesoscutum, more shining and more sparsely punctured abdomen, etc. From *flandersi* it differs in having hair on the mesoscutum long, punctureless apical margin of tergites narrow, etc.

Female. Black, with black pubescence, the hair on inner side of tarsi dark reddish brown, and some of the hairs on mesoscutum, and dorsal margin of hind tibiæ and basitarsi with dilute pigmentation and appearing as if faded or bleached. Head shaped much as in *flandersi*, with the clypeus but little produced, moderately convex. Whole face below antennæ shining, finely and very closely punctured. The punctures on clypeus considerably coarser than on rest of face and mostly not more than one puncture width apart. Frons longitudinally striate. Foveæ and process of labrum as in *flandersi*, except that the apical prolongation of the process is rather broader than long, with parallel sides and emarginate apex but no groove down the middle. Third antennal joint somewhat longer than 4 and 5. Flagellum very slightly brownish beneath at apex. Mesoscutum polished, finely and closely punctured, the punctures mostly one to two puncture widths apart. Disk of scutellum like the scutum except that the punctures are a little coarser and sparser. Mesopleura moderately coarsely rugulose, without evident punctures. Dorsal surface of propodeum with a similar but finer sculpture. Enclosure clearly defined, finely wrinkled much as in *blaisdelli*. Sides of propodeum tessellate and shining, not distinctly punctured, except in area in middle of dorsal part next to the floccus. Wings subhyaline with dark stigma and veins. Venation about as in *blaisdelli*. Abdomen polished, very finely and moderately closely punctured. First tergite sparsely punctured, as in *ænotheræ*, but the punctures slightly finer. Next three tergites punctured a little more sparsely than in *ænotheræ*, the punctureless apical margin of the segments narrow as in that species. Pygidium planate, not so broadly rounded at apex as in the other species. Pubescence abundant, long, but not concealing surface, that on mesoscutum nearly as long as that on the pleura. Scopa with very long spreading hairs, about as dense as in *blaisdelli*. Hair on tergite I sparse and long, that on II to IV short and erect. Length, 11.5 mm.; fore wing, 8.5 mm.

Described from one female (holotype), collected at flowers of *Baileya multiradiata* (but perhaps not collecting pollen), one mile south of Adelanto, Mohave Desert, Calif., May 28, 1932 (Timberlake); and one female (paratype), collected at Palmdale, Calif., April 11, 1936 (G. E. and R. M. Bohart) in the Bohart collection.

The paratype measures 13 mm., due to the greater extension of the abdominal segments.